

What is claim d is:

1. A clipping device for judging whether or not vertexes expressed by a predetermined coordinate system are inside or outside a multi-dimensional region of an object to be drawn, comprising:

a clip code generation circuit for generating clip codes obtained by setting data in accordance with results of comparison of coordinates of said vertexes and a judgment reference value of said multi-dimensional region and a negative value of the judgment reference value as bit data;

clip registers for shifting the clip codes generated at said clip code generation circuit; and

a logic circuit for performing a logic operation with respect to all bit data set in said clip registers and setting a clip flag indicating whether or not a vertex to be judged is inside or outside the multi-dimensional region of the object to be drawn.

2. A clipping device as set forth in claim 1, wherein:

said coordinates of vertexes include values corresponding to a plurality of coordinate axes of the predetermined coordinate system,

said clip code generation circuit generates a plurality of clip codes corresponding to the coordinates

axes, and

said clip registers have a capacity for holding at least said plurality of clip codes.

3. A clipping device as set forth in claim 1,
5 wherein said clip code generation circuit generates said clip codes based on code data obtained by subtracting an absolute value of said judgment reference value from the absolute value of said vertex coordinates, code data of said vertex coordinates, and code data of said judgment
10 reference value.

4. A clipping device as set forth in claim 2,
wherein said clip code generation circuit generates said clip codes based on code data obtained by subtracting an absolute value of said judgment reference value from the
15 absolute value of said vertex coordinates, code data of said vertex coordinates, and code data of said judgment reference value.

5. A clipping device for judging whether vertexes of a primitive expressed by a predetermined coordinate
20 system are inside or outside of a multi-dimensional region of an object to be drawn, a polyhedron being drawn in units of primitives including a plurality of vertexes, comprising:

a clip code generation circuit for generating
25 clip codes obtained by setting data in accordance with

results of comparison of vertex coordinates of said primitive and a judgment reference value of said multi-dimensional region and a negative value of the judgment reference value as bit data for the amount of the vertexes of the primitive;

a current clip register for shifting the clip codes generated at said clip code generation circuit in accordance with a control signal;

clip registers of at least a number smaller than the number of the vertexes of said primitive by one cascade connected to an output of said current clip register and able to replace the held data with the clip codes held by the register of a previous stage in accordance with a control signal;

a control circuit for outputting said control signal to the current clip register when receiving a clip code generation instruction to shift the clip codes generated at said clip code generation circuit and outputting said control signal to a corresponding clip register so as to replace the clip codes between adjacent clip registers including said current clip register when receiving a replacement instruction; and

a logic circuit for performing a logic operation with respect to all bit data stored in the clip registers including said current clip register and

setting a clip flag indicating whether or not the vertex to be judged is inside or outside the multi-dimensional region of the object to be drawn.

5 6. A clipping device as set forth in claim 5, wherein said control circuit outputs said control signal to a corresponding clip register so as to replace the clip codes along with the vertex processing in accordance with the type of the primitive.

10 7. A clipping device as set forth in claim 5, wherein said control circuit generates a vertex ready flag indicating that the vertexes' worth of clip codes of said primitive are ready at the time of execution of the replacement instruction.

15 8. A clipping device as set forth in claim 6, wherein said control circuit generates a vertex ready flag indicating that the vertexes' worth of clip codes of said primitive are ready at the time of execution of the replacement instruction.

20 9. A clipping device as set forth in claim 5, wherein said control circuit selectively initializes a desired register among a plurality of clip registers including said current clip register under predetermined conditions.

25 10. A clipping device as set forth in claim 6, wherein said control circuit selectively initializes a

d sir d r gist r among a plurality of clip r gist rs including said curr nt clip r gist r under pr d t rmin d conditions.

11. A clipping device as set forth in claim 5,
5 wherein:

said coordinates of said vertexes include values corresponding to a plurality of coordinate axes of a predetermined coordinate system,

said clip code generation circuit generates a
10 plurality of clip codes corresponding to the coordinate axes, and

said clip registers have capacities for holding at least said plurality of clip codes.

12. A clipping device as set forth in claim 5,
15 wherein the clip code generation circuit generates said clip codes based on code data obtained by subtracting an absolute value of said judgment reference value from the absolute value of said vertex coordinates, code data of said vertex coordinates, and code data of said judgment
20 reference value.